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(71) Applicant *(for all designated States except US)*: **E2V TECHNOLOGIES (UK) LIMITED** [GB/GB]; 106 Waterhouse Lane, Chelmsford, Essex CM1 2QU (GB).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **ALLEN, Brian, Philip** [GB/GB]; 30 Church Lane, Toppesfield, Essex CO9 4DS (GB). **GILBERT, Richard** [GB/GB]; 3 Riverbank Court, Shrublands Close, Chelmsford, Essex CM2 6WY (GB). **ZHOU, Xiao, Feng** [GB/GB]; 53 Barlows Reach, Chelmsford, Essex CM2 6SN (GB).

(74) Agent: **LOVELESS, Ian, Mark**; 16 Theobalds Road, London WC1X 8PL (GB).

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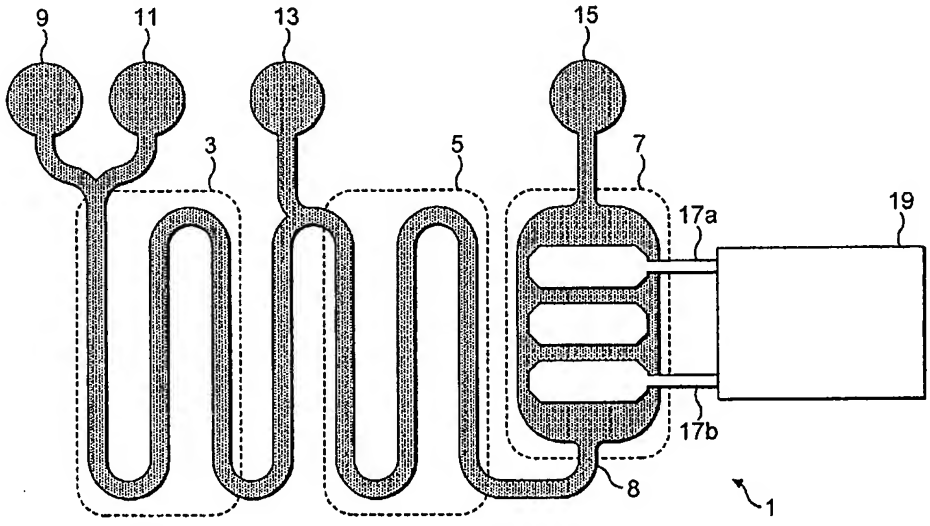
(54) Title: REACTION CONDITIONS SENSOR



(57) Abstract: A method and apparatus (1) for detecting adverse conditions during the analysis of chemical and biological processes are disclosed. In one embodiment, the reaction conditions in a microelectrochemical reaction chamber (7) are monitored. The reaction chamber (7) comprises electrodes (17a, 17b) arranged to pass an electric current through reaction mixture located within the reaction chamber, thereby inducing an electrochemical reaction. A detection circuit (19) is provided to detect and measure the electric current flowing between the electrodes (17a, 17b). The detection circuit (19) generates a signal indicating whether the measured current lies inside or outside a predetermined range of values. If the measured current lies outside the expected range of values, then the reaction conditions are adverse. A single pair of electrodes may perform a dual function of both inducing the electrochemical reaction detection. In another embodiment, electrodes are for detecting the presence of analytes Using the combined techniques of surface enhanced Raman scattering and surface plasmon resonance.

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